

### **REMARKS**

Applicants thankfully acknowledge the allowance of claims 62-65, and the indication of allowable subject matter with respect to claims 21-26, 31-34, 36, and 38.

The application has been amended to clarify the invention. In particular, independent claims 1 and 66 are amended to clarify that the rotatable annular ring is substantially hollow. This amendment is not considered new matter, in that it is supported by the original specification at page 16, line 17 to page 17, line 5. Moreover, this amendment does not raise any new issues for consideration, in that it merely clarifies the previous claim language. In particular, claims 1 and 66 recite an “annular ring”, and the specification states at the above-noted passage that “‘annular’ means substantially hollow...meaning, *inter alia*, that no central drive arms rotate through the space inside the ring”. Accordingly, the present claim amendment merely clarifies the prior language, and does not raise any new issues for consideration. Entry of the amendment and reconsideration are respectfully requested.

In the Office Action, claims 1, 3-5, 8-10, and 66-69 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 4,589,467 to Hunter (hereinafter “Hunter”). Claims 11, 13-16, 28-30, 35, 37, and 39-45 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Hunter in view of U.S. Patent No. 3,972,368 to Kikkawa et al. (hereinafter “Kikkawa”). Claims 17, 19-20 and 27 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Hunter in view of U.S. Patent No. 3,200,451 to Worswick (hereinafter “Worswick”). Kikkawa and Worswick were cited in the prior Office Action. In essence, the Examiner has withdrawn the previous rejections based on Shimuzu, and has cited substantially the same rejections with Hunter in place of Shimuzu. Each of these rejections is respectfully traversed.

The Office Action alleges that Hunter discloses a casting machine comprising a source of molten metal, a rotatable annular ring, shaped to carry a plurality of ingot casting molds, with inner and outer rails, as well as drive means including gears and a sprocket, wherein the drive sprocket can be powered by an AC motor. Hunter, however, fails to teach or suggest a substantially hollow annular ring, as required by independent claims 1 and 66.

As noted above, the annular ring defined through claims 1 and 66 of the present application is substantially hollow. The carousel of Hunter is not substantially hollow, in that the inside of the ring contains components, including a pneumatic cylinder 100 mounted across the space in the middle of the ring, as seen in Figure 13 and described at col. 8, line 35 of Hunter.

Moreover, additional structure is present within the interior of carousel ring of Hunter. In particular, as seen in Figures 13 and 14 of Hunter, there is a separate structure (which is labeled "A" in the attached copies of Figures 13 and 14) which is present within the space in the interior of the carousel ring of Hunter, which appears to represent a large portion of the drive mechanism of Hunter. With such a structure present within the interior space of the carousel ring, the carousel ring of Hunter is clearly not a "substantially hollow annular ring", as defined by independent claims 1 and 66, let alone a ring defining a space inside of the ring. Moreover, with such components including a pneumatic cylinder mounted across the space in the middle of the ring and a further structure appearing to be a large portion of the drive mechanism present within the interior space of the ring, it is apparent that Hunter does not disclose, nor reasonably suggest, the substantially hollow annular ring defining a space inside the ring, as required by claims 1 and 66. Accordingly, the rejection based on Hunter is improper. Withdrawal of the rejection is therefore appropriate and is respectfully requested.

Moreover, with respect to the rejections based on the combination of Hunter and Kikkawa, Kikkawa is cited merely for disclosing a Y-shaped launder and a skimming apparatus for scraping dross off molten metal. In essence, Hunter replaces Shimuzu in the prior rejection. The Examiner, however, has failed to consider additional language set forth which was added to claim 11 in the prior Amendment and which is clearly not disclosed or suggested in either Hunter or Kikkawa.

In particular, independent claim 11 defines a Y-shaped launder with first and second receiving portions for receiving molten metal. The first receiving portion is positioned to receive molten metal from one crucible, and the second receiving portion is positioned to receive molten metal from another crucible, with delivery portion extending between these receiving portions to the carousel. As such, two separate sources of molten metal (at the two top legs of the "Y") feed into a single mold position (at the bottom leg of the "Y"). Applicants describe these features on page 5, lines 20 - 25, on page 14, line 31, and in Figures 1, 2, and 3 of the application.

Kikkawa, on the other hand, teaches tilting crucibles which are connected in series to a single source launder that delivers molten metal to two separate mold positions on the mold, as shown in Figures 5-7 of Kikkawa. In other words, Kikkawa teaches feeding into the single leg of a "Y" into the two other ends of the "Y". In essence, Kikkawa teaches the exact opposite of the invention of claim 11, by teaching a single feed source to two separate molds as

opposed to two separate feed sources for a single mold. The Examiner has failed to consider these claim limitations which are not disclosed anywhere in Kikkawa.

Clearly Hunter and Kikkawa, whether considered alone or in combination, fail to disclose or suggest such an arrangement involving two receiving portions feeding to a single delivery portion as opposed to one receiving portion feeding into two delivery portions. Accordingly, withdrawal of the obviousness rejections of claim 11, as well as the dependent claims depending therefrom, is appropriate and is respectfully requested.

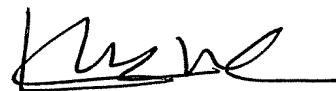
Finally, regarding the rejection of dependent claims 17, 19-20 and 27, Worswick has been combined with Hunter merely for its alleged teachings with respect to a water sprayer. Worswick fails to add anything to the deficient teachings of Hunter as already described above. Moreover, Worswick fails to describe Applicants' plurality of nozzles for spraying water onto the molds, as recited in claim 17. In contrast to Applicants' claimed invention, Worswick is limited to circulating water into a space within the mold under the ingot as explained at column 2, lines 9 - 14 of Worswick. Thus, withdrawal of the obviousness rejections based on Hunter in view of Worswick is appropriate and is respectfully requested.

Based on the foregoing, Applicants respectfully request entry of the present Amendment, withdrawal of all rejections of the claims and favorable reconsideration and allowance. Should the Examiner wish to discuss any of these issues in further detail, the Examiner is invited to contact Applicants' undersigned representative by telephone at 412-471-8815.

Respectfully submitted,

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